The American Journal of Botany (AJB) began in 1914 with the support of the Botanical Society of America (BSA) and the Brooklyn Botanic Garden. It was founded at the urging of EC. Newcombe (Pollack and Bartlett, 1928) who felt that botany journal editorial offices were “over-stocked with manuscripts” and there were insufficient publication outlets for American botanical research (Newcombe, 1914). Over time, there have been a number of changes to the journal, both in physical size and in content but the journal continues to fill a niche in the scientific literature. AJB is currently available on the shelves of most college and university libraries in the U.S., as well as in many faculty offices, and in research libraries affiliated with botanical gardens. Librarians tend to notice a particular journal:

- when the subscription cost increases dramatically
- when it changes title
- when an unusual issue arrives (e.g., has CD, supplement, or accompanying material)
- when journal issues have difficulty arriving on a timely basis
- when patrons are having difficulty locating a particular article based on a citation irregularity such as a supplement with separate pagination
- when patrons come to the reference desk with a cryptic journal name abbreviation that they need help to decipher
- when patrons have difficulty locating volumes of the journal because they are constantly in use
- with high cost per usage ratios.

All of these events form an overall opinion in librarians’ minds concerning the worth of a particular journal but, by far, the most critical event is a significant price increase.

JOURNAL PRICING CRISIS IN LIBRARIES

Starting about 20 years ago, librarians began quietly complaining (to each other and their administrators) about the growing imbalance between scholarly output and the library budget resources necessary to collect this output. However, it wasn’t until the 1990s that the crisis became much more pronounced and librarians were able to bring it to the notice of university administrators and faculty as a serious issue in need of attention. Much of the attention resulted from the need for multiple and, in some cases, annual journal cancellation projects in almost every library in the country. The scientific community, in particular, has been hit the hardest by this crisis. For an excellent overview of the journal pricing issues and the scholarly publication process see Branin and Case (1998).

As a result, librarians have become compelled to retain only the most necessary journals and cancel subscriptions to peripheral journals. Journals that fall in between these two extremes have been retained depending on the state of an individual library’s budget. Botany journal subscriptions have been a struggle for all libraries to retain in tight budget eras, but especially so in universities without an agriculture program.

FACTORS THAT INFLUENCE LIBRARY DECISIONS

Methods of journal evaluation will vary from campus to campus, depending on several different factors. Journal usage statistics are considered by most librarians to be the quintessential piece of information (e.g., see Enssle and Wilde, 2002); however, no one method will guarantee that absolutely all uses will be captured. At best one can determine the relative extent of a given kind of use as compared to other journals (e.g., see Edelman, 1994; Blecic, 2002). Unfortunately, in larger libraries this sort of data is almost impossible to collect universally due to the enormous amount of time it would take to collect it for all active subscriptions. Some libraries have created special short-term projects to collect data on a select group of journals—typically considered for this are high price journals or journals dealing with peripheral subjects. Other libraries rely on cost and impact factor analysis (e.g., see Cornell University, 1998). Online usage data is also helpful but not always available from publishers. Some libraries also conduct extensive cost per usage studies. Some, such as Iowa State University, request faculty input into the process (Madison, 1999) while others do not. In general, every librarians goal is to keep the journals which support the undergraduate, teaching and research needs of the institution while still maintaining an adequate budget for other needs such as database purchases, books, staffing, computer equipment, etc.

Core journals exist in each discipline and are usually considered to be essential to keep, regardless of other factors, unless librarians are faced with an overwhelming price increase or a major budget reduction at their institution. Agreeing on a core list can sometimes be as difficult as getting agreement on a university program-ranking list. "The problem is, no study is ever definitive. Other researchers take issue with the methodology to claim that the results are not accurate,
authoritative, or timely . . . clearly judgement is a crucial element in core lists” (Corby, 2003). On occasion, such lists are published and librarians do use them in making journal retention decisions or as a basis from which to begin, adding other factors to form a “local” core list (Hughes, 1995).

As alluded to above, although high impact factors are not necessarily the only factor used in creating lists of core journals in botany, in recent years they have become increasingly important to librarians as the beginning point for identifying possible journals for cancellation. One of the reasons for this is that most librarians do not have educational degrees in the sciences. College and university librarians usually have a Master’s degree in Library and Information Science, but only 20% have undergraduate degrees in biology, 8.9% have earned an additional master’s degree in a science or engineering-related discipline, and an additional 8.9% have earned doctorates in science-related disciplines (Winston, 2001). There is no figure for those specifically trained in botany, but it is very likely be around 5% or less. Librarians are trained to know the basics of evaluating journals and using information on local academic specializations to form the basis of purchasing decisions related to library collections. They rely on outside experts (faculty at their university, published articles and books, etc.) to aid them in identifying core journals in a given discipline.

HOW DO SOCIETY PRESS PUBLICATIONS RATE?

Historically, librarians have preferred non-profit society and academic press journals over those from commercial publishers. “Professional, scientific, and technical societies, for example, tend to emphasize basic research and the more technical aspects to a subject, while industrial and trade associations lean toward the practical, personal, and popular side. Societies, too, almost uniformly make use of highly qualified subject experts, called referees, to evaluate critically all original contributions before they are published, thus imparting reliability, authoritativeness, and prestige to their publications” (Bonn and Smith, 2002, p. 101). Journal pricing comparisons also tend to favor society publications heavily as being considerably cheaper than most commercially-produced journals despite a lack of widely-published journal pricing comparisons. The reason for this lack is that Henry Barschall published an article in 1986 analyzing the cost of physics journals. Gordon & Breach (a commercial publisher) sued Barschall, the American Institute of Physics, and the American Physical Society over the published study. One U.S. court and two of three European courts supported Barschall’s findings; however, few recent authors have been willing to undergo publisher scrutiny and publish similar pricing studies. (A summary of the litigation, reprints of the original published study, and press releases from the parties involved are available on the Internet from both Stanford University and Yale University Libraries websites, 1997.)

Not all societies are golden. On rare occasion, librarians take exception with particularly vexing society presses. For example, Jasper Schad gives a rather scathing view of scientific society publishers and takes issue with journal pricing from the American Chemical Society and American Physical Society (Schad, 1997).

Society journals are often crucial for libraries to retain in order to maintain accreditation. For example, the American Chemical Society (ACS) publishes Library Guidelines for ACS Approved Schools that provides a recommended journal sub-

AJB AS A “CORE” JOURNAL

Time and again, AJB has been reaffirmed as an essential journal in botany. AJB was listed as the most highly cited botany journal in both 1944 and 1954 (Brown, 1956, p. 124 and p. 182). In the 1970’s, AJB slipped down in the journal rankings with the sudden popularity of plant physiology journals. AJB was #15 on the botany journal impact factor list (Garfield, 1975a) but continued to appear on lists of significant botany journals (Garfield, 1977, 1980a). By 1992, “Two [general botany] journals dominate the impact factors: The American Journal of Botany from the Botanical Society of America, and the New Phytologist from the British branch of Academic Press . . . The American is the most ecological and evolutionary, while the New Phytologist is the most physiological . . . Because of its sponsorship and high quality, most librarians will have to select the American Journal first. The remaining picks can follow either a more general or a more physiological emphasis according to institutional needs” (Stankus, 1992, p. 248–9). In 1996, AJB was included in a list of 54 core plant science journals (Davis and Schmidt, 1996, p. 45) and was described as “One of the leading botanical journals.” In the introductory section, the authors state that they included the “most significant contemporary journals of botany that are key to a wide range of botanical interests.”

In the last 5 years, AJB has consistently ranked around #17 in the plant sciences according to ISI Journal Citation Reports. Journals above AJB on the impact factor list are clearly specialized cellular and molecular plant science journals. Yet, AJB continues to appear on core lists. In 1998, AJB was listed in both core agriculture journals and core biological journal sections of the Cornell University Journal Price Study. In 2000, Stankus again credited AJB in his list of “Journals of the Century.” He tried to include no more than “two or three of the ‘best’ journals in each discipline. For Botany, he stated: “Academic plant studies began with identification and classification, based on anatomy, growing habits, means of reproduction and natural range. All of these approaches have since subdivided into their own specialties, but general botanical journals remain of enduring importance. In the U.S., the American Journal of Botany . . . and the International Journal of Plant Sciences . . . have been deeply rooted” (Stankus, 2000, p. 134–135).

UNIQUENESS OF BOTANY LITERATURE

In 1956, Charles Harvey Brown (a former University Librarian at Iowa State College) discussed the nature of botanical literature and made the following points: 1) botany is historically one of the two most important and comparatively independent biological sciences; 2) botany is dependent on journals in general science, agriculture, chemistry, and medicine; 3) the botanical literature is stable and uses a larger percentage of books to journals than do other scientific disciplines; 4) biochemistry, physiology and genetics are assuming more im-
portance in the study of botany. This work has formed the basis for several other later studies and guides on botanical literature but, unfortunately, is rarely used to justify the need to maintain a core collection for botanists.

Eugene Garfield, founder of the Institute for Scientific Information (ISI, which publishes the Science Citation Index and Web of Science) has been following trends in botanical literature for many years and conducting research based on citation rates and impact factors (Garfield, 1975a, b, 1977, 1980a, b, 1987). He went a step further than Brown and stated that “it is a fact of scientific life that botanists, as a group, use research from literally thousands of different journals; in botany, as many ‘classic’ papers are published in multidisciplinary journals as are published in the designated botany journals” (Garfield, 1977). In a couple of follow-up articles, he postulated reasons for the unusual citation trend in botany: 1) botanists cite basic physics and chemistry heavily but the reverse is not true, and 2) the “second-class citizen” status of botanical research doesn’t encourage animal cell researchers to refer to plant cell work (Garfield, 1980a, b). Clearly a core list of botany journals will include many journals from related disciplines, but needs to also include general botany journals regardless of their impact factor.

BOTANY AS A CHANGING DISCIPLINE

As in many other large universities, Botany no longer exists as a separate department at Iowa State University. It has been interspersed through several related departments due to its growing interdisciplinary nature. This is not a new issue (e.g., Trow, 1983) but critics worry that this will cause botany to be eclipsed by specialized fields or lose clout (Roush, 1997). Librarians utilize information about academic department changes in their decisions concerning book and journal purchases and, as departments are eliminated, less money is spent on collecting journals in those subject areas. With department mergers it becomes difficult to track the fate of some areas, such as botany, and the tendency may be to assume there is no longer any interest (or that interest is only peripheral). Faculty in many colleges and universities list their research interests on department web pages. This can be exceedingly helpful to librarians but due to current focuses on organismal versus molecular biology it may be difficult to ascertain whether research involves plants, animals, or both. Librarians try to keep abreast of discipline changes, both locally and in general, and BSA is in a unique position to aid in this endeavor. Publication of Botany for the Next Millennium was a good first step. It provided botanists with the opportunity to describe the state of botany and put forth goals for the profession. Not surprisingly, it reported that “there is a need for strengthening education and communication about plants and botanical sciences at all levels of society.” It was disseminated to many botanists and libraries similarly to any other BSA publication; however, very little attention was drawn to it by anyone other than those involved in creating it. As botany struggles to retain and enliven its identity, so do librarians struggle to recognize the worth of botanical journals in their collections.

THE ELECTRONIC FUTURE

In the late 1990s, there was an explosion of growth in electronically accessible journals. Librarians began providing access to both print and electronic versions of a given journal wherever possible. As pricing models changed, librarians were encouraged by commercial publishers to cancel their print or print/electronic subscriptions in favor of cheaper electronic-only subscriptions. Electronic versions have many benefits for researchers, including quicker access to the most recent issue and the ability to access articles remotely. Researchers are no longer bound by the constraints of library hours or geographic location.

HighWire Press and JSTOR host the electronic version of AJB. JSTOR provides access to articles up to the current 5 years and HighWire provides access to articles from 1997 to the present. HighWire has several noteworthy features including: inter-journal linking of cited references, cross journal searching, table of contents alerts, and the ability to track topics, authors or specific articles. Both JSTOR and HighWire provide detailed usage statistics for librarians and easy-to-use interfaces for researchers.

Similar to past concerns about the future of the printed book, editors and librarians both wonder about the future of the printed journal. Many seem reluctant to go electronic-only while others embrace it wholeheartedly. Electronic books have not supplanted print ones but they have clearly found a niche. Detractors point out that it is not as easy or pleasurable to curl up with an electronic book; however, electronic journals are used differently than books. As publishers make strides in improving the quality of both the images and interfaces the electronic journal may well overshadow use of print journals in the near future.

THE FUTURE OF AJB

Overall, the American Journal of Botany is in an enviable position with regard to its status in librarians’ opinions. It is published by a major society with a sterling reputation and subscription costs/increases have been kept to levels that most undergraduate libraries can afford. It is included in both general and specialized indexes (ensuring articles are located by both beginning and advanced researchers) and electronic access is available via HighWire and JSTOR. AJB is continually referred to as a core journal. Unlike many other journals that change names as often as they change editors, AJB has never changed title. In addition, the individual issues arrive in a timely fashion and users do not have any difficulty deciphering the name of the journal from the standard abbreviation format many other journals use in their “literature cited” sections. AJB goes one step further in winning applause from librarians in that the “literature cited” section is very complete and designed to make it easy for researchers to track down the original source material. Many libraries that have gone through multiple cancellation projects in recent years have chosen to retain their subscriptions to AJB, further supporting the assessment that it is seen as a worthwhile and relevant journal.

The continued success of AJB is up to botanists. Library subscriptions to AJB need to be used by researchers, whether paper or electronic. Many botanists tend to use their own copy of AJB and do not refer students to the library collection. Libraries that rely on usage data to make journal retention decisions might not see the need to keep subscriptions to AJB unless they are shown other good reasons to retain it. Librarians need educated to botany’s unique citation quandary and lack of visibility as a separate academic department. As botany departments merge with other campus departments, the Botanical Society of America will have to work harder at educating the world to the importance of botany within the life sciences.
BSA members should try to use and cite articles from AJB within articles they publish in other journals, where appropriate. This will help bring AJB to the notice of researchers who might not ordinarily peruse it. BSA should also consider supporting the creation of a “core botany” journal list for undergraduates, similar to that of the American Chemical Society.

As a reaction to the scholarly publishing/pricing crisis, many faculty members in the U.S. are being actively encouraged to boycott high-priced journals—both as possible publishing venues and in bibliographies or citation lists. AJB needs to be positioned to take advantage of these events. Editors should actively educate BSA members to the advantages of publishing in AJB versus competing journals from commercial publishers. Efforts also need to extend beyond BSA members to alerting other disciplines to the importance of botany. For example, perhaps botanists could publish articles about their discipline in the Chronicle of Higher Education, the Journal of Molecular Biology, a general science journal such as Nature or in a prominent library science journal such as College & Research Libraries. In addition, including AJB articles in recommended reading lists on class web pages or listing them on authors’ web pages can increase visibility. As many librarians can grudgingly attest, researchers often discover relevant articles by searching for their topic on the Internet. BSA members need to become conscious of the impact they have on the success of their journal, and botanists need to take actions to ensure AJB not only continues to be a core botany journal but becomes a core journal in the life sciences as well.

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